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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/990,627	11/16/2001	Mark A. Lemkin	AIMI-01924US0	3417

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EXAMINER

TERESINSKI, JOHN

ART UNIT	PAPER NUMBER
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2858

DATE MAILED: 10/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/990,627

Applicant(s)

LEMKIN ET AL.

Examiner

John Teresinski

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AW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-22 and 36-49 is/are pending in the application.
- 4a) Of the above claim(s) 23-35, 41-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-22, 36-40 and 45-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Claims 23-35 and 41-44 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 3.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5, 14, 19, 20-22, 36-39 and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,612,494 to Shibano in view of U.S. Patent No. 5,945,980 to Moissev et al..

Regarding claims 1, 45 and 46, Shibano discloses a capacitance type acceleration sensor having: a sense pulse generator providing a first sense pulse and a second sense pulse (column 5 lines 1-5, Fig. 1 element 7); a sense capacitor coupled to the sense pulse generator (column 5 lines 8-16 Fig. 1 element 1); a detector coupled to the sense capacitor (column 5 lines 8-16 Fig. 1 element 3); and a storage device coupled to the detector (column 5 lines 4-5, Fig. 1 element 4). Shibano does not disclose the output having a first polarity sense pulse and a second polarity sense pulse. Moissev et al. disclose a capacitive touchpad sensor including a sense pulse generator with output having a first polarity sense pulse and a second polarity sense pulse

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(column 3 lines 36-40, 59-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include output having a first polarity sense pulse and a second polarity sense pulse as taught by Moissev et al. into Shibano for the purpose of increasing the sensing characteristics of the sensor thereby increasing the functionality of the sensor (column 3 lines 59-67).

Regarding claims 2, 3 and 47, Shibano discloses a sample and hold storage circuit comprising of an amplifier and a capacitor (Fig. 1 elements 4, A2, and CH).

Regarding claim 5, Shibano discloses a filter coupled to the storage device (Fig. 1 element 8).

Regarding claim 14, Shibano discloses a second sense capacitor coupled to the detector (Fig. 1 elements C1,C2).

Regarding claims 19 and 20, Shibano discloses a first and second sense pulses as voltage pulses (column 6 lines 8-10) and charge pulses (column 7 lines 5-10).

Regarding claims 21 and 22, Shibano discloses a detector comprising a charge detector and voltage detector (column 7 lines 53-67).

Regarding claims 36 and 39, Shibano discloses a sense pulse generator with an inverting polarity over two phases (column 6 lines 9-34).

Regarding claim 37, Shibano discloses a charge detector comprising a buffer (Fig. 1 element A1).

Regarding claim 38, Shibano discloses a charge integrator (Fig. 1 element 3).

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Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibano and Moissev et al. in view of U.S. Patent No. 6,188,294 to Ryan et al..

Regarding claim 4, Shibano as modified does not disclose a capacitor as the storage device. Ryan et al. discloses a random sequence generator utilizing a capacitor as a storage device for a capacitive sensing circuit (column 6 lines 66-67 column 7 lines 1-7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a capacitor as the storage means as taught by Ryan et al. into Shibano as modified for the purpose of providing a storage means capable of compensating for white noise (column 7 lines 9-12).

Claims 7, 8, 10-13, 17, 18, 40, 48 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibano and Moissev et al. in view of U.S. Patent No. 5,606,515 to Mockapetris et al..

Regarding claims 7, 8, 10, 17, 18, 48 and 49, Shibano discloses a switch having a first input coupled with a low-pass filter (Fig. 1 elements 6 and 8). Shibano as modified does not disclose a demodulation circuit coupled to the storage device or an analog to digital converter coupled to the storage device and the demodulator. Mockapetris et al. disclose circuitry for providing alternating current excitation waveforms for transducers including an analog to digital converter coupled to storage means and coupled to a demodulator with an input and output (column 1 lines 41-51, Fig. 2 element 61). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an analog to digital converter coupled to storage means and coupled to a demodulator as taught by Mockapetris et al. into Shibano as

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modified for the purpose of providing increased processing capabilities of the measured response (column 1 lines 51-53).

Regarding claim 11, Shibano discloses a second input of the nonlinear element/switch coupled to a signal synchronous with sense pulse polarity (Fig. 1 elements 6 and 7).

Regarding claim 12, Shibano discloses an analog sensor output (column 2 lines 56-65).

Regarding claims 13 and 40, Shibano as modified does not disclose a digital input to the demodulation circuit. Mockapetris et al. disclose a digital input to the demodulation circuit (column 1 lines 41-52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the digital input means to the demodulation circuit as taught by Mockapetris et al. into Shibano as modified for the purpose of providing simple and accurate demodulation of the digital response (column 1 lines 51-53).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibano, Moissev et al. and Mockapetris et al. as applied to claims 1 and 7 above, and further in view of U.S. Patent No. 5,345,824 to Sherman et al..

Regarding claim 9, Shibano as modified does not disclose a filter that includes a high pass characteristic. Sherman et al. disclose an accelerometer including a filter that includes a high pass characteristic (column 1 lines 35-48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a filter with a high pass characteristic as taught by Sherman et al. into Shibano as modified for the purpose of providing a full scale range of measurement (column 1 lines 35-48).

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibano and Moissev et al. in view of U.S. Patent No. 5,345,824 to Sherman et al..

Regarding claims 15 and 16, Shibano discloses detector output responsive to the orientation of the sensing structure (column 1 lines 60-67). Shibano as modified does not disclose third and fourth capacitors coupled to the detector and sense pulse generator, or the sensors forming part of a microstructure. Sherman et al. disclose an accelerometer comprising four capacitive sensors forming part of a microstructure (column 5 lines 10-24). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include four capacitive sensors forming part of a microstructure as taught by Sherman et al. into Shibano as modified for the purpose of providing multiple oriented sensors on a single substrate (column 8 lines 31-41).

Response to Arguments

Applicant's arguments with respect to claims 1-5, 7-22, 36-40 and 45-49 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Teresinski whose telephone number is (703) 305-4746. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on (703) 308-0750. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JT
JT
October 9, 2003



N. Le
Supervisory Patent Examiner
Technology Center 2800